DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 99.28

WELDING INSPECTION REPORT

Resident Engineer: Casey, William
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-029971
Date Inspected: 28-Aug-2013

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Steward Machine Co.

OSM Arrival Time: 600
OSM Departure Time: 1530
Location: Birmingham AL

CWI Name:	Fred Hudson			**CWI Present:**	☑ Yes	☐ No		
Inspected CWI report:	☐ Yes	☐ No	☑ N/A	**Rod Oven in Use:**	☐ Yes	☐ No	☑ N/A	
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A	
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☐ Yes	☐ No	☑ N/A	
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A	
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A	

Bridge No: 34-0006
Component: E2 Shear Key Anchorages

Summary of Items Observed:

Quality Assurance Inspector (QAI) Fritz Belford was present on the date and times noted above in order to observe the fabrication and Quality Control (QC) functions performed by Steward Machine Company for the E2 Shear Key Anchorages for the SFOBB project. Material Test Reports (MTRs) for all materials used have been reviewed and approved by others at the XKT shop in Vallejo California prior to shipping to Steward Machine Company. The following items were observed:

STEWARD MACHINE - PLANT 1:
The QA performed a walkthrough at the shop to verify plates on site and to observe Steward Machine personnel at work machining and welding. Work performed at the Steward Machine shop as noted below:

Welder Jeff Hennington #476:
The welder was observed welding the S10B Upper Saddle Assembly (Plates a2 thru d1) root pass and interpass on the East end side of the assembly utilizing Welding Procedure Specification (WPS) P2-W126-B for Flux Core Arc Welding (FCAW-G) in the 1G position. Assembly was specifically repositioned for the 1G as the welder was qualified for. The welding parameters were monitored by Certified Welding Inspector (CWI) Fred Hudson who was onsite with the WPS as required by contract documents. The welding parameters were measured to be 290Amps, 31Volts with E70T-1 Class 1/16” diameter wire with a pre heat of over 70 degrees Fahrenheit.

Assembly S10B as welded by welder #476 above includes plates S10B-d1, S10B-c1, S10B-b1, S10B-a1, S10B-b2, S10B-a2.

Plate Milling:
CNC Machine #176 milling plate S3C-g3. (Milling inside radius)
CNC Machine #177 milling plate S3C-h3. (Milling inside radius)
CNC Machine #211 milling plate S4C-c4 (Milling inside radius troughs)
CNC Machine #215 milling plate S4B-e4 (Milling bolt holes)
CNC Machine #225 milling plate S3C-c3. (Milling inside radius troughs)
CNC Machine #230 milling plate S10C-a1. (Milling inside radius troughs)
CNC Machine #240 milling plate S3C-b3. (Milling inside radius)
CNC Machine #245 milling plate S3B-g3. (Milling inside radius)

The following plates were noted staged throughout the shop in various stages of processing.
Bay 2 – Plates:
S3B-h3. Formed, stressed relieved and partially machined.
S4B-h4. Formed, stressed relieved and partially machined.
S3B-b3. Formed, stressed relieved and partially machined.
S4B-b4. Formed, stressed relieved and partially machined.
S3C-a3. Formed, stressed relieved and partially machined.

Bay 3 – Plates:
S3C-d3. Formed, stressed relieved and partially machined.
S4C-g4. Formed, stressed relieved and partially machined.
S4C-e4. Formed, stressed relieved and partially machined.
S3B-e3. Formed, stressed relieved and partially machined.
S3C-e3. Formed, stressed relieved and partially machined.

Bay 4 & 5– Plates:
S10C-d1. Formed, stressed relieved and partially machined.
S3B-f3. Formed, stressed relieved and partially machined.
S3C-f3. Formed, stressed relieved and partially machined.
S4B-f4. Formed, stressed relieved and partially machined.
S4C-f4. Formed, stressed relieved and partially machined.
S10B-d1. Formed, stressed relieved and partially machined.
S10B-c1. Formed, stressed relieved and partially machined.
S10B-a1. Formed, stressed relieved and partially machined.
S10B-b1. Formed, stressed relieved and partially machined.
S10B-a2. Formed, stressed relieved and partially machined.
S10B-b2. Formed, stressed relieved and partially machined.
S4C-d4. Formed, stressed relieved and partially machined.
S4C-h4. Formed, stressed relieved and partially machined.
S10C-c1. Formed, stressed relieved and partially machined.
S10C-b1. Formed, stressed relieved and partially machined.
S10C-b2. Formed, stressed relieved and partially machined.
S4B-c4. Formed, stressed relieved and partially machined.
S4B-d4. Formed, stressed relieved and partially machined.

S4B-g4. Formed, stressed relieved and partially machined.
S10C-a2. Formed, stressed relieved and partially machined.
S4C-a4. Formed, stressed relieved and partially machined.
S3B-a3. Formed, stressed relieved and partially machined.
S3B-c3. Formed, stressed relieved and partially machined.
S4B-a4. Formed, stressed relieved and partially machined.

STEWARD MACHINE - PLANT 2:
No welding or cutting on contract items at the plant on this day.

HARDIE TYNES:
The QA performed a walkthrough at the shop to verify plates on site and to observe Hardie Tynes personnel at work machining the plates. The following plates were noted staged on the shop floor for further processing.
S3B-d3. Formed, stressed relieved and partially machined.
S4C-b4. Formed, stressed relieved and partially machined.
No machining of plates by Hardie Tynes on this day until completion of other projects currently mounted on the CNC machines.

GREEN TAG RELEASE.
Hardie Tynes: Lot# B359-58-13
- Plate S4C-b4 was green tag released for Steward Machine. See TL-6011 for detailed information.

NON-DESTRUCTIVE TESTING (NDT).
The QA performed NDT on the following.
Plate S4C-b4 at Hardie Tynes:
- Visual Testing (VT) & Magnetic Particle Testing (MPT) Accept. (See TL-6028 for detailed information.)
Assembly S10B (Root Pass, East Side) at Steward Plant 1:
- Visual Testing (VT) & Magnetic Particle Testing (MPT) Accept. (See TL-6028 for detailed information.)

The Non Destructive Testing (NDT) listed above were observed performed and accepted by the QC Inspectors prior to the QA Inspector performing the tests. The QC Inspectors performed 100% NDT with the QA Inspector performing over 10% NDT.

WELDING INSPECTION REPORT

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Summary of Conversations:

QC Inspector Dale Janiszewski expressed concerns to the QAI and the SMR of the epoxy to be used and the 48hr hold after welding, before the Magnetic Particle Testing (MPT) can be performed on the welds. The QC Inspector informed the QAI and SMR that the 48hr hold before MPT was waived as per Zach Lauria of American Bridge/Fluor Enterprises. The SMR relayed to the QC Inspector that we would have to confirm with METS the waive on the 48hr hold. At the end of the day the SMR received word from METS that the requirements for the Magnetic Particle Testing has not been waived and that the 48hr hold after welding for the Magnetic Particle Testing (MPT) is still required. This information was then relayed to the QC Inspector by the QAI. Details of the epoxy to be used is yet to be clarified.

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Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Gary Thomas (916) 764 -6027, who represents the Office of Structural Materials for your project.

Inspected By:	Belford,Fritz	Quality Assurance Inspector
Reviewed By:	Foerder,Mike	QA Reviewer